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International note: Confirmatory factor analysis and psychometric properties of the Youth Psychopathic Traits Inventory in a sample of Portuguese adolescents

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ABSTRACT

The aim of this paper was to test the factorial structure and evaluate the psychometric properties of the Youth Psychopathic Traits Inventory (YPI). The YPI is composed of 10 dimensions that further represent three hypothesized facets of the classical description of psychopathy: callousness, interpersonal manipulation and impulsiveness. A sample of 500 adolescents aged 12 to 18 ($M = 14.87$; $SD = 1.67$) from northern Portugal participated in this study. The results generally confirmed the factorial structure of the YPI in this sample, with some qualifications.

Introduction

The Youth Psychopathic Traits Inventory (YPI; Andershed, Kerr, Stattin, & Levander, 2002) aims to identify psychopathic traits among 12-18-year-olds. The YPI was derived from Cooke and Michie's (2001) three-factor model of psychopathy and was developed to overcome the deliberate manipulation of one's self-image, which can produce biased results. Therefore, its items are written in positive or neutral language (Lilienfeld & Andrews, 1996).

According to Andershed et al. (2002), the YPI's factorial structure is similar to that of the Psychopathy Checklist Revised (PCL-R: Hare, 2003) according to Cooke and Michie (2001). The callous/unemotional dimension produces the least consistent results; in a study by Poythress, Dembo, Wareham, and Greenbaum (2006), the three-factor model was not replicated.

Method

Participants and procedure

The participants included 500 12–18-year-old adolescents ($M = 14.87$; $SD = 1.67$) (all students invited to participate actually participated). The study was performed in the Northern District of Portugal. We selected two regular schools (n = 262) and two professional schools (n = 238).

This study was conducted after obtaining informed consent from parents and authorization from school boards.

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Table 1
Values corresponding to the CFA between items and dishonest charm, grandiosity, lying and manipulation first order factors.

Dimensions	Factorial saturations (standardised direct effects)	Construct/composite reliability	Variance extracted %
Dishonest charm	.60 (it.6) to .76 (it.38) (M = .66)*	.79/.98	44
Indexes $\chi^2 = 6.46+$, p = .26, *df* = 5; CFI = .99+; NFI = .99+; RMSEA = .02+			
Grandiosity	.51 (it.30) to .68 (it.37) (M = .61)*	.75/.97	38
Indexes $\chi^2 = 7.65$, p = .18, *df* = 5; CFI = .99 +; NFI = .99+; RMSEA = .033+			
Lying	.55 (it.7) to .74 (i43) (M = .65)*	.78/.97	42
Indexes $\chi^2 = 14.179$, p = .015; CFI = .99+; NFI = .98+; RMSEA = .061+			
Manipulation	.57 (it.46)to .84 (i20) (M = .69)*	.81/.98	48
Indexes $\chi^2 = 48.412$, p < .001, *df* = 5; CFI = .95; NFI = .94; RMSEA = .13			

Note. it = item; + reference values: $\chi^2 < 2$; CFI > 0.90; RMSEA < .08; NFI > 0.80; *t > 196, p < .05.

Table 2
Values Corresponding to the CFA Between Items and Remorselessness, Unemotionality and Callousness (first order factors).

First order factors	Factorial saturations (standardised direct effects)	Construct/composite reliability	Variance extracted %
Remorselessness	. 49 (it.8) to .61 (it.48) (M = .54)	.67/.94	30
Indexes $\chi^2 = 4.58$, p = .47, *df* = 5; CFI = 1,000; NFI = .99; RMSEA = 0.000			
Unemotionality	.42 (it.2) to .56 (it.39) (M = .48)	.97/.90	23
Indexes $\chi^2 = 35.60$, p < 0.001, *df* = 5; CFI = .86; NFI = .85; RMSEA = 0.111			
Callousness*(5it.)	−.052 (it.12) e .09 (it.17) to .73 (it.35) (M = .35)	.41/.70	.21
Calloussness.(3it)	.42 (it.23) to .74 (it.35) (M = .57)	.58/.81	.34
Mod. 5 items: Indexes $\chi^2 = 24.29$, p < .001, *df* = 5; CFI = .88; NFI = .86; RMSEA = .09			
Mod. 3 items: Indexes $\chi^2 = .00$, *df* = 9; CFI = 1.00; NFI = 1.00; RMSEA = .22			

Note. it = item; reference values: $\chi^2 < 2$; CFI > .90; RMSEA < .08; NFI > .80.
*t > 1.96; p < .05.

Measures

The YPI contains 50 items; responses are given on a 4-point Likert scale ranging from "Does not apply at all" to "Applies very well" (Andershed et al., 2002). To construct the YPI, the authors started by creating 10 subscales of five items each that displayed good reliability. These 10 first-order factors corresponded to the classical description of psychopathy. Andershed et al. (2002) submitted these 10 first-order factors for principal component analysis (PCA) with Promax rotation, and three second-order factors, *grandiose manipulative*, *callous/unemotional*, *and impulsivity and lack of sense of responsibility*, were obtained from exploratory factorial analysis (EFA) and confirmatory factorial analysis (CFA; χ^2 indexes) with structural equation modelling (SEM); this model displayed a good fit to the data (Comparative Fit Index [CFI] = 0.98).

Results

CFA

CFAs with SEM were performed using variance-covariance matrices (50 items, 498 participants) to test the model fit of ten first-order factors and three second-order factors. These analyses were conducted in two steps. First, we analysed the fit among the observed variables, the items, and the first-order factors. Second, we analysed the fit between the first-order and second-order factors.

Table 3
Values corresponding to the CFA between items and thrill-seeking, impulsivity, lack of sense of responsibility first order factors.

First order factors	Factorial saturations (standardised direct effects)	Construct/composite reliability	Variance extracted %
Thrill-seeking	.46 (it.4) to .69 (it.22) (M = .57)	.70/.95	32
Indexes $\chi^2 = 74.214$, p < 0.001, *df* = 5; CFI = .84; NFI = .83; RMSEA = .17			
Impulsivity	.37 (it.3) to .68 (it.18) (M = .50)	.63/.92	27
Indexes $\chi^2 = 12.734$, p = 0.025, *df* = 5; CFI = .97; NFI = .95; RMSEA = .06			
Lack of sense of responsibility	.42(it.13) to .70 (it.16) (M = .55)	.68/.94	31
Indexes $\chi^2 = 16.60$, p = .0005, *df* = 5; CFI = .97; NFI = .97; RMSEA = .05			

Note. it = item; + reference values: $\chi^2 < 2$; CFI > 0.90; RMSEA < .08; NFI > 0.80; *t > 1.96, p < .05.

Table 4
Factorial saturation values between the YPI second orders and first order factors.

First order factors	Variable	Saturations				
		Non-standardised	Standardised	Standard error	t test	p
F2.1. Grandiose/manipulative	Manipulation	1.000	.904		*	
	Lying	.908	.819	.037	24.638	<.001
	Grandiosity	.785	.753	.037	21.190	<.001
	Disonest charm	.973	.878	.034	28.239	<.001
F2.2. Callous/unemotional	Callousness	1.000	.118		*	
	Unemotionality	5.232	.779	2.162	2.420	.016
	Remorselessness	5.991	.806	2.474	2.422	.015
F3.3. Impulsive/lack of sense of responsibility	Lack of sense of responsibility	1.000	.730		*	
	Impulsivity	.939	.765	.063	14.987	<.001
	Thrill-seeking	1.005	.730	.070	14.456	<.001

Note. * Parameter fixed to 1, without the "t value".

Table 5
Covariance relation between the YPI second order factors.

Second order factors	Second order factors	Standardised	Standard error	t test	p
F2.1. Grandiose/manipulative	F2.2. Callous/unemotional	.801	.014	2.390	.017
F3.3. Impulsive/lack of sense of responsibility	F2.2. Callous/unemotional	.738	.009	2.370	.018
F3.3. Impulsive/lack of sense of responsibility	F2.1. Grandiose/manipulative	.758	.016	10.643	<.001

For the fit indexes, we used the χ^2 index, the CFI, the root mean square error of approximation (RMSEA) and the normed fit index (NFI). The following criteria were applied: $\chi^2 < 2$ (Tabachnick & Fidell, 2001); CFI > 0.90; RMSEA < 0.08; and NFI > 0.80 (Arbuckle & Wothke, 1999).

In Tables 1–3, all items displayed highly significant, positive associations with the tested first-order factors.

In Table 2, index values indicating good fit were observed for the factor remorselessness. However, the indices did not indicate good fit for unemotionality/callousness.

In Table 3, for the factors impulsivity and lack of sense of responsibility, the indexes, with the exception of the χ^2 index, indicated good model fit.

As presented in Table 4, the factorial saturations were high and significant, varying between 0.73 and 0.90, except for the relationship between the *callous/unemotional* second-order factor and the *callousness* first-order factor (0.118). In contrast, the covariance-standardized values between the second-order factors were high and significant (see Table 5).

Fig. 1 presents an overall model of the relationships between all first- and second-order factors.

Discussion

The overall model for the Portuguese version of the YPI was supported by the following fit indices: CFI, NFI and RMSEA. In a previous study by Andershed et al. (2002), a similar model was supported by the CFI and the non-NFI (NNFI; boys 0.98; girls

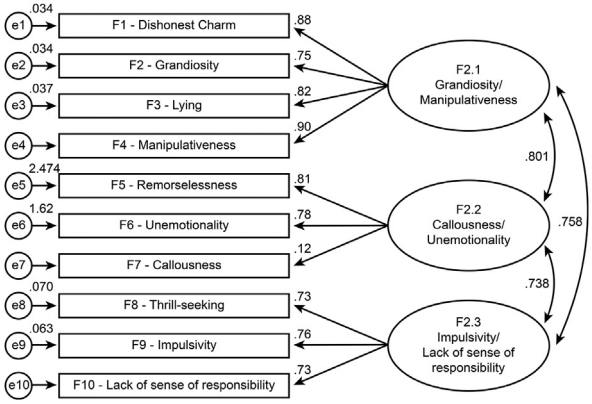

Fig. 1. Global model of the factorial structure of the YPI between the first order and the second order factors (standardised values).

0.97) when gender was considered. The χ^2 value was significant in the present study and in a validation study (Andershed et al., 2002).

Notably, when the fit indices between the items and the first-order factors were considered, all indices, including the χ^2 value, indicated good model fit for dishonest charm and grandiosity. The remaining first-order factors, except for those referring to thrill expression and experience (thrill-seeking, unemotionality and callousness), were supported by the NFI. The measurement method used to determine the unidimensionality constitutes a study limitation. In that regard, rather than using the fixed-factor method described by Little (2013) for scaling latent factors, the factor loadings of marker indicators were freed and the factor variances were fixed at 1.00. This modification permitted estimation of those parameters and avoided assigning metrics. As observed in previous studies (Andershed et al., 2002; Declercq, Markey, Vandist, & Verhaeghe, 2009; Dolan & Rennie, 2006), the overall dimension of callousness/unemotionality showed weak factor loading. The mean values obtained from these item responses were below the mean value of the scale; this result demonstrated that these factors did not indicate psychopathy.

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